

TEXAS DEPARTMENT OF CRIMINAL JUSTICE

Risk Management Program



EXECUTIVE SUMMARY

EMPLOYEE AND OFFENDER INJURIES AND

WORKERS' COMPENSATION CLAIMS COST

ANNUAL REPORT FY 2012

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Overview

The following outcome measures are provided for your review. The statistical information contained in the TDCJ Risk Management Executive Summary is derived from injury data reported by TDCJ Unit Risk Managers, in conjunction with the State Office of Risk Management (SORM) Workers' Compensation Division. SORM is the workers' compensation insurance carrier for TDCJ.

Workers' Compensation Fiscal Year-to-Date Expenditures:

August 2011: \$ 15,312,794.32

August 2012: \$ 13,440,922.79 (Decreased by \$1,871,871.53)

Employee Injuries:

August 2011: 410

August 2012: 423 (Increased by 13)

Predominate causes of employee injuries for August 2012:

- Struck by or against (100 combined for 24%)
- Slips, trips, or falls (85 combined for 20%)
- Offender assault (72 for 17%)
- Overexertion (40 for 9%)
- Caught in/on/between (33 for 8%)
- Insect bite (27 for 6%)

Units reporting the most employee injuries:

- Allred (23)
- Darrington (22)
- Estelle (17)
- Coffield (16)
- Polunsky and Wynne (15 each)
- Clements, Michael, and Stiles (14 each)

Offender Injuries:

August 2011: 1,136

August 2012: 1,222 (Increased by 86)

Predominate causes of offender injuries for August 2012:

- Struck by or against (371 combined for 30%)
- Slips, trips, or falls (206 combined for 17%)
- Offender assault (194 for 16%)
- Self-inflicted (113 for 9%)
- Overexertion (83 for 7%)
- Contact w/temperature extremes (77 for 6%)

Units reporting the most offender injuries:

- Wynne (45)
- Allred (44)
- Darrington (39)
- Michael and Telford (35 each)
- Clements (31)
- Garza West (29)

Year-to-date employee Injury Frequency Rate (IFR): **11.4**

Year-to-date claims Injury Frequency Rate (IFR): **5.1**

Employee Injury Frequency Rate (IFR): The IFR is calculated by multiplying the number of injuries by 200,000 (exposure of 100 employees working 40 hours per week for 50 weeks per year) and dividing that product by the total hours worked by all employees during the fiscal year to date (the number of employees listed on Monthly Report "Total Employee Counts by Payroll Distribution Code" {ID PAY77PDC} multiplied by the product of 168 {average hours worked per month} multiplied by the number of months worked in this fiscal year-to-date).

Claims Injury Frequency Rate (IFR): The IFR for accepted claims is calculated by multiplying the number of accepted claims by 100 (per 100 employees working 40 hours per week for 50 weeks per year) and dividing that product by the average monthly strength.

NOTE: Please notify this office if you do not wish to receive this report.

FY2012 YTD Employee Injuries

														FY11	FY12	
	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug		TOTAL	Average Monthly Injuries Sep-Aug	Average Monthly Injuries Sep-Aug
Region 1	83	67	70	64	65	59	58	77	76	70	56	92	837	66	70	13.4
Region 2	48	36	42	47	50	51	52	55	45	65	61	62	614	52	51	11.4
Region 3	70	46	57	48	54	56	61	53	61	72	66	87	731	60	61	12.0
Region 4	55	49	38	37	42	47	52	53	58	48	58	55	592	58	49	13.5
Region 5	42	33	50	49	41	45	34	38	39	87	41	60	559	48	47	10.6
Region 6	65	42	47	46	52	53	64	68	67	50	64	44	662	58	55	12.0
Parole *	11	3	6	4	5	1	9	5	2	7	3	3	59	7	5	2.2
Administration	26	20	14	31	47	32	23	21	19	23	28	20	304	27	25	11.4
Totals	400	296	324	326	356	344	353	370	367	422	377	423	4,358	374	363	11.4

Employee Injuries by Cause

													TOTAL	FY11	FY12	
	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug		Average Monthly Injuries Sep-Aug	Average Monthly Injuries Sep-Aug	Injury Frequency Rate
Animal Bite	0	0	1	2	0	0	1	1	1	3	2	1	12	1	1	0.0
Bodily Reaction	3	6	4	3	3	5	3	7	4	8	9	6	61	4	5	0.2
Caught In/On/Btwn	38	27	29	28	29	19	36	32	34	27	29	33	361	29	30	0.9
Cont w/Chemicals	10	3	4	2	1	5	2	4	0	4	5	6	46	4	4	0.1
Contact w/Electricity	5	0	3	3	3	2	2	4	3	1	3	1	30	1	3	0.1
Cont w/Temp Extr	3	2	3	5	4	3	3	2	5	2	2	2	36	3	3	0.1
Exp Envirmnt Hzd	10	10	3	2	2	4	2	3	2	3	4	4	49	5	4	0.1
Fall Different Level	15	6	17	17	20	16	11	18	15	10	18	20	183	14	15	0.5
Fall Same Level	40	33	50	46	35	42	29	35	54	32	41	40	477	47	40	1.2
Horse Related	6	4	1	0	5	2	6	5	7	3	3	2	44	5	4	0.1
Insect Bite	20	10	8	3	7	10	7	10	15	18	20	27	155	16	13	0.4
Medical Condition	16	10	11	6	8	14	22	12	8	42	17	19	185	11	15	0.5
Offender Assault	63	50	58	56	71	68	73	92	54	71	56	72	784	64	65	2.0
Overexertion	53	21	41	41	57	38	36	42	49	64	35	40	517	44	43	1.4
Slip-Not a Fall	31	29	18	22	28	26	32	18	27	14	22	25	292	27	24	0.8
Staff-Staff Assault	1	0	0	0	3	1	0	2	0	1	0	1	9	1	1	0.0
Struck Against	48	52	51	66	53	60	59	58	45	55	59	71	677	61	56	1.8
Struck By	23	28	18	20	20	23	27	20	31	30	20	29	289	26	24	0.8
Vehicular	8	4	4	4	6	5	2	4	6	3	8	2	56	4	5	0.1
Weather Related	7	1	0	0	1	1	0	1	7	31	24	22	95	9	8	0.2
Totals	400	296	324	326	356	344	353	370	367	422	377	423	4,358	374	363	11.4

* Of the 3 Parole injuries reported for this current month, 0 were attributed to Texas Board of Pardons and Paroles employees.

Employee Injuries Resulting in a Workers' Compensation Claim Accepted by SORM

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	TOTAL	FY11 Average Monthly Sep-Aug	FY12 Average Monthly Sep-Aug	Claims Frequency Rate
Region 1	32	18	39	29	35	17	24	18	40	37	29	41	359	30	30	5.8
Region 2	32	15	23	18	22	19	23	32	22	41	33	24	304	22	25	5.7
Region 3	32	25	29	17	24	20	25	25	25	33	33	33	321	26	27	5.3
Region 4	21	12	13	16	19	17	25	16	25	22	24	15	225	23	19	5.2
Region 5	20	17	19	20	16	21	13	14	19	53	14	25	251	21	21	4.8
Region 6	19	14	26	19	25	20	25	24	30	23	27	32	284	24	24	5.2
Parole	4	4	4	4	4	2	3	4	5	4	1	3	42	6	4	1.6
Administration	16	8	12	9	19	16	14	12	11	12	16	13	158	13	13	6.0
Totals	176	113	165	132	164	132	152	145	177	225	177	186	1,944	165	162	5.1

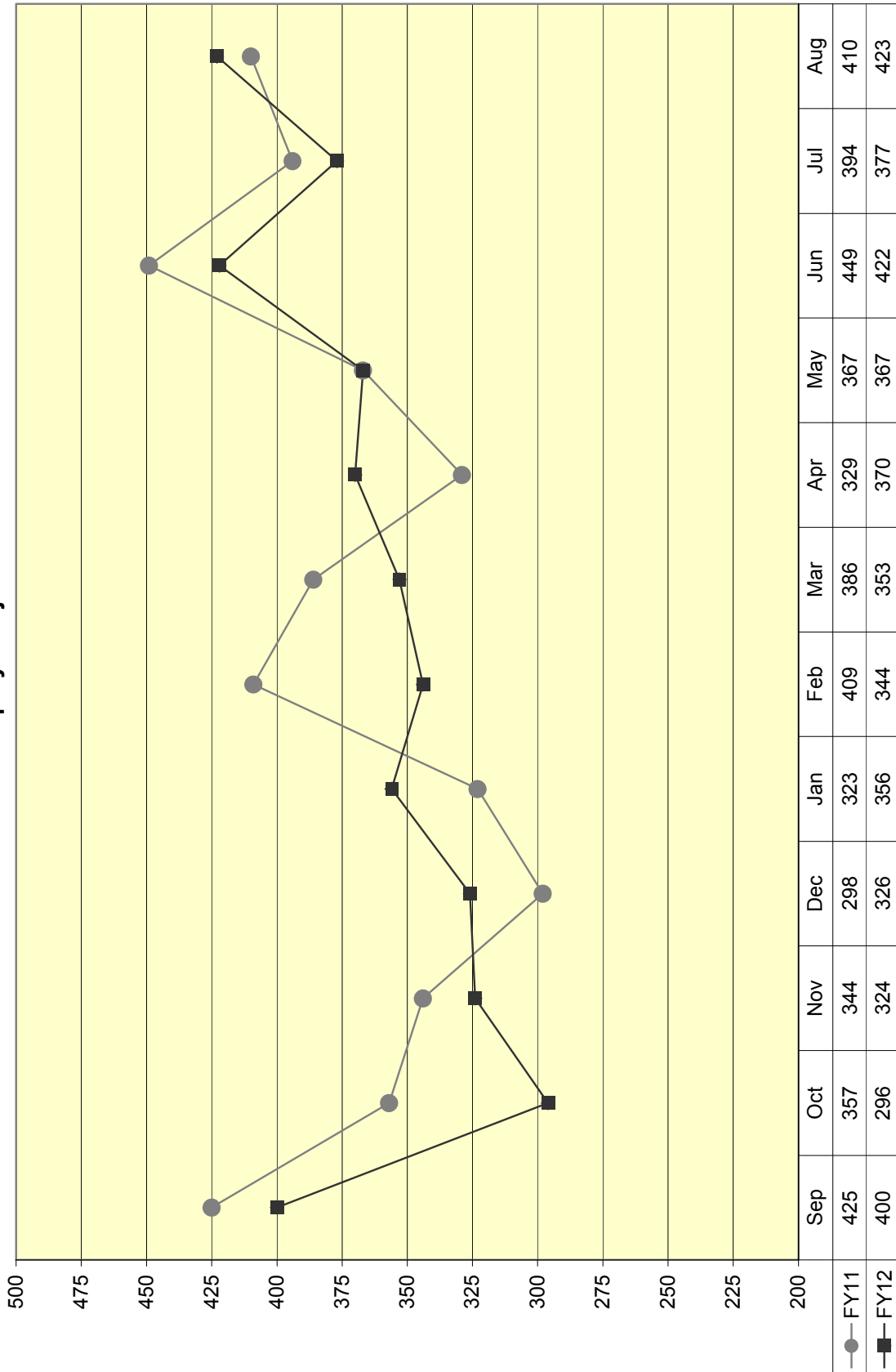
Numbers are shown in the month the claim was filed with SORM, which may not be the month in which the injury occurred.

Workers' Compensation Claims Cost Data

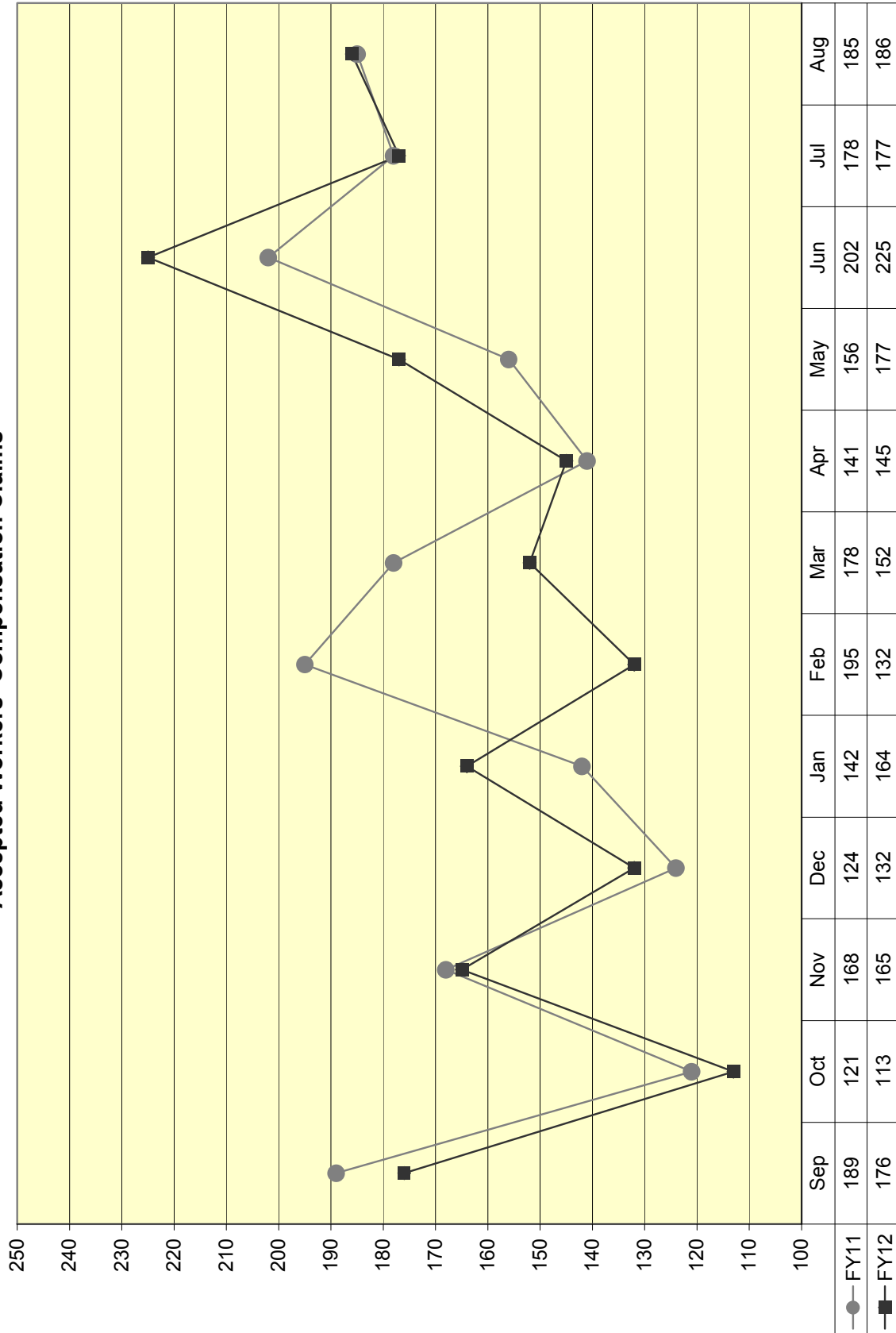
	Total Claims Cost FYTD	Total Claims Cost FYTD Filed Prior to FY11*	Total Claims Cost FYTD Filed In FY11-12	Average Cost per Claim	# of Claims
Region 1	\$2,554,712.98	\$877,084.96	\$1,677,628.02	\$5,541.68	461
Region 2	\$1,394,703.02	\$529,809.88	\$864,893.14	\$3,169.78	440
Region 3	\$3,087,040.21	\$1,085,828.30	\$2,001,211.91	\$6,799.65	454
Region 4	\$1,703,545.87	\$407,369.83	\$1,296,176.04	\$4,853.41	351
Region 5	\$1,283,167.91	\$310,167.66	\$973,000.25	\$4,060.66	316
Region 6	\$1,606,033.34	\$740,090.98	\$865,942.36	\$4,486.13	358
Parole	\$628,114.38	\$128,835.57	\$499,278.81	\$7,659.93	82
Administration	\$1,183,605.08	\$286,070.60	\$897,534.48	\$6,132.67	193
Totals	\$13,440,922.79	\$4,365,257.78	\$9,075,665.01	\$5,062.49	2,655

The claims cost YTD figures reflect current FY expenditures, including claims filed in past years that are still incurring costs. They do not include past expenditures for past claims that are currently inactive and no longer incurring costs.

**Risk Management Program
Fiscal Year Comparison of
Total Employee Injuries**



**Risk Management Program
Fiscal Year Comparison of
Accepted Workers' Compensation Claims**



FY2012 YTD Offender Injuries

														TOTAL	FY11	FY12	
	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Average Monthly Injuries Sep-Aug		Average Monthly Injuries Sep-Aug	Average Injuries per 100 Offenders	
Region 1	152	126	97	105	109	126	181	133	159	183	217	186	1,775	130	148	0.6	
Region 2	120	98	123	92	102	132	160	161	161	186	217	197	1,748	143	146	0.6	
Region 3	150	107	129	100	126	115	107	113	175	194	160	188	1,664	126	139	0.6	
Region 4	109	95	91	80	98	104	96	132	100	119	117	136	1,277	118	106	0.5	
Region 5	134	102	92	97	138	157	115	174	175	208	229	234	1,855	170	155	0.7	
Region 6	175	120	119	119	123	110	158	199	184	200	185	198	1,890	153	158	0.7	
Private Fac	97	86	79	80	91	76	138	94	121	109	99	83	1,153	106	96	0.6	
Totals	937	734	730	673	787	820	955	1,006	1,075	1,199	1,224	1,222	11,362	947	947	0.6	

Offender Injuries by Cause

														TOTAL	FY11	FY12	
	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Average Monthly Injuries Sep-Aug		Average Monthly Injuries Sep-Aug	Average Injuries per 100 Offenders	
Animal Bite	2	6	0	1	1	3	7	3	3	4	6	4	40	3	3	0.0	
Bodily Reaction	21	3	13	9	8	6	8	11	23	29	28	30	186	7	16	0.0	
Caught In/On/Btwn	42	38	38	40	39	34	34	56	45	60	47	50	523	43	44	0.0	
Cont w/Chemicals	18	12	18	13	13	15	9	17	13	11	12	17	168	14	14	0.0	
Contact w/Electricity	1	2	1	0	1	1	1	2	1	0	2	0	12	1	1	0.0	
Cont w/Temp Extr	67	59	44	47	44	66	87	59	87	81	81	77	799	69	67	0.0	
Exp Envirmnt Hzd	0	0	5	2	1	1	3	0	2	4	1	2	21	1	2	0.0	
Fall Different Level	36	34	25	36	23	27	41	40	38	39	36	39	414	37	35	0.0	
Fall Same Level	84	47	74	65	87	62	103	90	98	94	128	101	1,033	91	86	0.1	
Horse Related	3	6	2	5	2	5	8	5	4	6	3	7	56	4	5	0.0	
Insect Bite	10	7	5	2	1	3	8	22	15	27	31	30	161	12	13	0.0	
Medical Condition	12	9	10	9	11	11	13	15	26	15	24	19	174	14	15	0.0	
Offender Assault	137	99	115	112	143	142	120	153	165	174	147	194	1,701	144	142	0.1	
Overexertion	67	46	41	44	56	65	65	76	91	110	90	83	834	68	70	0.0	
Self-Inflicted	94	92	81	94	103	110	94	108	105	119	133	113	1,249	98	104	0.1	
Slip-Not a Fall	56	34	35	30	42	49	53	61	63	74	84	66	647	52	54	0.0	
Struck Against	166	146	138	95	126	140	182	171	178	199	209	227	1,977	171	165	0.1	
Struck By	112	93	82	69	86	77	119	111	110	120	115	144	1,238	109	103	0.1	
Vehicular	3	1	3	0	0	3	0	1	1	3	14	4	33	1	3	0.0	
Weather Related	6	0	0	0	0	0	0	5	7	30	33	15	96	7	8	0.0	
Totals	937	734	730	673	787	820	955	1,006	1,075	1,199	1,224	1,222	11,362	947	947	0.6	

Numbers are shown in the month the injury was entered in the Risk Management Safety Incident Reporting System, which may not be the month in which the injury occurred.

Definitions of Injury Causes

Animal Bite – bite or scratch from a dog, cat, snake, rat, and other similar situations

Bodily Reaction - change in body function caused by allergic reaction, e.g., poison ivy

Caught In, On, or Between - a pinch point type injury that involves mashing or squeezing, e.g., caught finger in door, caught finger in between pulley, door shut on foot

Contact with Chemicals – splashed by liquid chemicals, dry particles inhaled, overcome by fumes of chemical agents, natural gas, vehicle exhaust, ammonia, insecticide, and other similar situations

Contact with Electricity - electrical shock from bad plug and other similar situations

Contact with Temperature Extremes - burns caused by heat or cold, e.g., burned hand in deep fryer, oven, and other similar situations

Exposure to Environmental Hazards - hazards such as radiation, exposure to infectious diseases, and other similar situations

Fall on Different Level - fall off of object that has to be climbed or stepped on, e.g., stairs, fell out of bunk, fell off picket ladder, fell stepping down from truck or trailer, and other similar situations

Fall on Same Level - fall while standing, walking or sitting, e.g., fell out of chair, slipped on wet floor and fell, tripped over some object and fell, and other similar situations

Horse Related - thrown by horse, fall off horse, and other similar situations

Insect Bite - bitten or stung by spiders, wasps, ants, unknown insects, and other similar situations

Medical Condition – resulting from pre-existing medical conditions, e.g., seizures, chest pains, dizziness, and other similar situations

Offender Assault - physically attacked by offender, hit, bit, struck by liquid, and other similar situations, or injuries resulting from attacking an offender, e.g., bruised or scraped knuckles

Overexertion - caused by body movement, sprain, strain or muscle or skeleton type injury, e.g., bending, lifting, pushing, pulling, turning, walking, and other similar situations

Self-Inflicted - suicide attempt, cutting for purposes of self-mutilation, tattooing, and other similar situations

Slip (Not a Fall) - a slip or trip causing pulled muscles or strains that does not result in a fall

Staff on Staff Assault - assault by co-worker

Struck Against - part of body hitting an object, e.g., walking into a fixed object, sticking finger with tattoo needle, bumped into rail, cut hand on wire, and other similar situations

Struck By - moving or falling object hitting the body, e.g., lid fell on arm, hit by ball, foreign object in eye, and other similar situations

Vehicular - injury received as a driver or passenger in vehicle or trailer and other similar situations

Weather Related - extremes in weather temperatures, e.g., heat exhaustion, sunburn, frostbite, and other similar situations

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF TEXAS
HOUSTON DIVISION

STEPHEN McCOLLUM, and SANDRA	§	
McCOLLUM, individually, and STEPHANIE	§	
KINGREY, individually and as independent	§	
administrator of the Estate of LARRY GENE	§	
McCOLLUM,	§	
PLAINTIFFS	§	
	§	
v.	§	CIVIL ACTION NO.
	§	4:14-cv-3253
	§	JURY DEMAND
BRAD LIVINGSTON, JEFF PRINGLE,	§	
RICHARD CLARK, KAREN TATE,	§	
SANDREA SANDERS, ROBERT EASON, the	§	
UNIVERSITY OF TEXAS MEDICAL	§	
BRANCH and the TEXAS DEPARTMENT OF	§	
CRIMINAL JUSTICE.	§	
DEFENDANTS	§	

Plaintiffs' Consolidated Summary Judgment Response Appendix

EXHIBIT 252

From: Zepeda, Stephanie D.
To: Lannette Linthicum; Robert Williams; Darrell Mccracken
CC: Paul Morales; George Crippen; Owen Murray
Sent: 4/15/2013 11:18:52 AM
Subject: RE: Heat Related Illness
Attachments: Heat FAQ CDC.pdf; Heat Prevention Guide CDC.pdf; Heat Related Illness AAFP.pdf; Heat Related Illnesses 2012 Security.pptx; Heat Related Illnesses 2013.pptx; Heat related risk with meds Eur J Neuro 2009.pdf; Heat Stress Policy D-27.2.pdf; Heat stroke risks.pdf; Heat thermoregulation issues with meds 1998.pdf; Photosensitivity Policy D-27.3.pdf; Temperature Extremes Fact Sheet.docx

Good morning,

I would be happy to provide assistance if needed. Below is a list of resources that might be helpful.

- The Pharmacy put together an in-service on this topic. It may be useful in developing the video.
- The P&T Committee also provided input on wallet cards on this topic for officers. I can't recall who asked the Committee to review it.
- Correctional Managed Health Care policy D-27.2
- Correctional Managed Health Care policy D-27.3
- A few articles/references on the topic

Thanks.

Stephanie Zepeda, PharmD
Director, Pharmacy Services
UTMB Health
Correctional Managed Care
2400 Avenue I
Huntsville, TX 77340
Phone: 936-437-5300
Fax: 936-437-5311
sdzepeda@utmb.edu

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From: lannette.linthicum@tdcj.state.tx.us [mailto:lannette.linthicum@tdcj.state.tx.us]

Sent: Monday, April 15, 2013 9:56 AM

To: Williams, Robert; darrell.mccracken@tdcj.state.tx.us

Cc: paulmorales@tdcj.state.tx.us; george.crippen@tdcj.state.tx.us; Zepeda, Stephanie D.; Owen Murray

Subject: Re: Heat Related Illness

Please include Dr. Stephanie Zepeda who is a doctor of clinical pharmacology and our director of pharmacy services. Her input regarding medications that can potentiate heat related illnesses is imperative. Thanks

From: Robert Williams

Sent: 04/15/2013 09:45 AM CDT

To: Darrell Mccracken

Cc: Paul Morales; George Crippen; Lannette Linthicum

Subject: Re: Heat Related Illness

Mr Crippen will be a valuable resource in this endeavor and will provide you with the requested assistance.

From: Darrell Mccracken

Sent: 04/15/2013 09:42 AM CDT

To: Robert Williams

Cc: Paul Morales

Subject: Heat Related Illness

Dr. Williams,

Sharon Howell, TDCJ General Counsel has contacted Correctional Training and Staff Development to make a court ordered training video on heat related illnesses. This video will be directed to Correctional Officers and is to include training on prevention, identification and treatment of heat related illnesses.

I am requesting any information that is available on these three subject areas so that they may be utilized in developing the script in making this video. Our intent is to have this video available to the units by the first of June.

Plaintiffs' MSJ Appx. 6169

TDCJ043039-TDCJ043040/1

Any information that can be provided would be greatly appreciated.

Regards,

Darrell McCracken

Correctional Training and Staff Development

936-437-8504 Phone

936-437-8512 Fax

"Honor, Courage, Commitment"

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Centers for Disease Control and Prevention
CDC 24/7: Saving Lives. Protecting People.™

Frequently Asked Questions (FAQ) About Extreme Heat

What happens to the body as a result of exposure to extreme heat?



People suffer heat-related illness when the body's temperature control system is overloaded. The body normally cools itself by sweating. But under some conditions, sweating just isn't enough. In such cases, a person's body temperature rises rapidly. Very high body temperatures may damage the brain or other vital organs. Several factors affect the body's ability to cool itself during extremely hot weather. When the humidity is high, sweat will not evaporate as quickly, preventing the body from releasing heat quickly. Other conditions that can limit the ability to regulate temperature include old age, youth (age 0-4), obesity, fever, dehydration, heart disease, mental illness, poor circulation, sunburn, and prescription drug use and alcohol use.

Who is at greatest risk for heat-related illness?

Those at greatest risk for heat-related illness include infants and children up to four years of age, people 65 years of age and older, people who are overweight, and people who are ill or on certain medications.

What is heat stroke?

Heat stroke is the most serious heat-related illness. It occurs when the body becomes unable to control its temperature: the body's temperature rises rapidly, the sweating mechanism fails, and the body is unable to cool down. Body temperature may rise to 106°F or higher within 10 to 15 minutes. Heat stroke can cause death or permanent disability if emergency treatment is not provided.

What are the warning signs of a heat stroke?



Warning signs of heat stroke vary but may include the following:

- An extremely high body temperature (above 103°F)
- Red, hot, and dry skin (no sweating)
- Rapid, strong pulse
- Throbbing headache
- Dizziness
- Nausea
- Confusion
- Unconsciousness

What should I do if I see someone with any of the warning signs of heat stroke?

If you see any of these signs, you may be dealing with a life-threatening emergency. Have someone call for immediate medical assistance while you begin cooling the victim. Do the following:

- Get the victim to a shady area.
- Cool the victim rapidly, using whatever methods you can. For example, immerse the victim in a tub of cool water; place the person in a cool shower; spray the victim with cool water from a garden hose; sponge the person with cool water; or if the humidity is low, wrap the victim in a cool, wet sheet and fan him or her vigorously.
- Monitor body temperature and continue cooling efforts until the body temperature drops to 101-102°F.
- If emergency medical personnel are delayed, call the hospital emergency room for further instructions.
- Do not give the victim alcohol to drink.
- Get medical assistance as soon as possible.

What is heat exhaustion?

Heat exhaustion is a milder form of heat-related illness that can develop after several days of exposure to high temperatures and inadequate or unbalanced replacement of fluids. Those most prone to heat exhaustion are elderly people, those with high blood pressure, and those working or exercising in a hot environment.

What are the warning signs of heat exhaustion?

The warning signs of heat exhaustion include the following:

- Heavy sweating
- Paleness
- Muscle cramps
- Tiredness
- Weakness
- Dizziness
- Headache
- Nausea or vomiting
- Fainting

The skin may be cool and moist. The pulse rate will be fast and weak, and breathing will be fast and shallow. If heat exhaustion is untreated, it may progress to heat stroke. See medical

attention if symptoms worsen or last longer than one hour.



What steps can be taken to cool the body during heat exhaustion?

- Drink cool, nonalcoholic beverages.
- Rest.
- Take a cool shower, bath, or sponge bath.
- Seek an air-conditioned environment.
- Wear lightweight clothing.

What are heat cramps and who is affected?

Heat cramps are muscle pains or spasms – usually in the abdomen, arms, or legs – that may occur in association with strenuous activity. People who sweat a lot during strenuous activity are prone to heat cramps. This sweating depletes the body's salt and moisture. The low salt level in the muscles causes painful cramps. Heat cramps may also be a symptom of heat exhaustion. If you have heart problems or are on a low-sodium diet, seek medical attention for heat cramps.

What should I do if I have heat cramps?

If medical attention is not necessary, take the following steps:

- Stop all activity and sit quietly in a cool place.
- Drink clear juice or a sports beverage.
- Do not return to strenuous activity for a few hours after the cramps subside because further exertion may lead to heat exhaustion or heat stroke.
- Seek medical attention for heat cramps if they do not subside in 1 hour.



What is heat rash?

Heat rash is a skin irritation caused by excessive sweating during hot, humid weather. It can occur at any age but is most common in young children. Heat rash looks like a red cluster of pimples or small blisters. It is more likely to occur on the neck and upper chest, in the groin, under the breasts, and in elbow creases.

What is the best treatment for heat rash?

The best treatment for heat rash is to provide a cooler, less humid environment. Keep the affected area dry. Dusting powder may be used to increase comfort.

Can medications increase the risk of heat-related illness?

The risk for heat-related illness and death may increase among people using the following drugs: (1) psychotropics, which affect psychic function, behavior, or experience (e.g. haloperidol or chlorpromazine); (2) medications for Parkinson's disease, because they can inhibit perspiration; (3) tranquilizers such as phenothiazines, butyrophenones, and thiozanthenes; and (4) diuretic medications or "water pills" that affect fluid balance in the body.



How effective are electric fans in preventing heat-related illness?

Electric fans may provide comfort, but when the temperature is in the high 90s, fans will not prevent heat-related illness. Taking a cool shower or bath or moving to an air-conditioned place is a much better way to cool off. Air conditioning is the strongest protective factor against heat-related illness. Exposure to air conditioning for even a few hours a day will reduce the risk for heat-related illness. Consider visiting a shopping mall or public library for a few hours.

How can people protect their health when temperatures are extremely high?

Remember to keep cool and use common sense. Drink plenty of fluid, replace salts and minerals, wear appropriate clothing and sunscreen, pace yourself, stay cool indoors, schedule outdoor activities carefully, use a buddy system, monitor those at risk, and adjust to the environment.

How much should I drink during hot weather?

During hot weather you will need to drink more liquid than your thirst indicates. Increase your fluid intake, regardless of your activity level. During heavy exercise in a hot environment, drink two to four glasses (16-32 ounces) of cool fluids each hour. Avoid drinks containing alcohol because they will actually cause you to lose more fluid.

Should I take salt tablets during hot weather?

Do not take salt tablets unless directed by your doctor. Heavy sweating removes salt and minerals from the body. These are necessary for your body and must be replaced. The easiest and safest way to do this is through your diet. Drink fruit juice or a sports beverage when you exercise or work in the heat.

What is the best clothing for hot weather or a heat wave?

Wear as little clothing as possible when you are at home. Choose lightweight, light-colored, loose-fitting clothing. In the hot sun, a wide-brimmed hat will provide shade and keep the head cool. If you must go outdoors, be sure to apply sunscreen 30 minutes prior to going out and continue to reapply according to the package directions. Sunburn affects your body's ability to cool itself and causes a loss of body fluids. It also causes pain and damages the skin.



What should I do if I work in a hot environment?

Pace yourself. If you are not accustomed to working or exercising in a hot environment, start slowly and pick up the pace gradually. If exertion in the heat makes your heart pound and leaves you gasping for breath, STOP all activity. Get into a cool area or at least in the shade, and rest, especially if you become lightheaded, confused, weak, or faint.

This information provided by NCEH's Health Studies Branch.

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Extreme Heat: A Prevention Guide to Promote Your Personal Health and Safety

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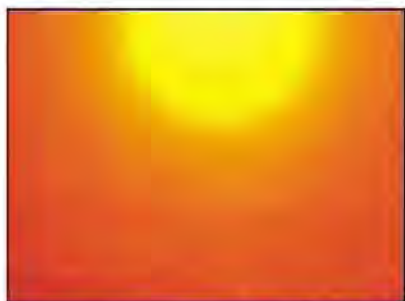
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HIGHLIGHTS

- Elderly people (65 years and older), infants and children and people with chronic medical conditions are more prone to heat stress.
- Air-conditioning is the number one protective factor against heat-related illness and death. During conditions of extreme heat, spend time in locations with air-conditioning such as shopping malls, public libraries, or public health sponsored heat-relief shelters in your area.
- Get informed. Listen to local news and weather channels or contact your local public health department during extreme heat conditions for health and safety updates
- Drink cool, nonalcoholic beverages and increase your fluid intake, regardless of your activity level.

Heat-related deaths and illness are preventable yet annually many people succumb to extreme heat. Historically, from 1979-2003, excessive heat exposure caused 8,015 deaths in the United States. During this period, more people in this country died from extreme heat than from hurricanes, lightning, tornadoes, floods, and earthquakes combined. In 2001, 300 deaths were caused by excessive heat exposure.

People suffer heat-related illness when their bodies are unable to compensate and properly cool themselves. The body normally cools itself by sweating. But under some conditions, sweating just isn't enough. In such cases, a person's body temperature rises rapidly. Very high body temperatures may damage the brain or other vital organs.



Several factors affect the body's ability to cool itself during extremely hot weather. When the humidity is high, sweat will not evaporate as quickly, preventing the body from releasing heat quickly. Other conditions related to risk include age, obesity, fever, dehydration, heart disease, mental illness, poor circulation, sunburn, and prescription drug and alcohol use.

Because heat-related deaths are preventable, people need to be aware of who is at greatest risk and what actions can be taken to prevent a heat-related illness or death. The elderly, the very young, and people with mental illness and chronic diseases are at highest risk. However, even young and healthy individuals can succumb to heat if they participate in strenuous physical activities during hot weather. Air-conditioning is the number one protective factor against heat-related illness and death. If a home is not air-conditioned, people can reduce their risk for heat-related illness by spending time in public facilities that are air-conditioned.

Summertime activity, whether on the playing field or the construction site, must be balanced with measures that aid the body's cooling mechanisms and prevent heat-related illness. This pamphlet tells how you can prevent, recognize, and cope with heat-related health problems.

What Is Extreme Heat?

Conditions of extreme heat are defined as summertime temperatures that are substantially hotter and/or more humid than average for location at that time of year. Humid or muggy conditions, which add to the discomfort of high temperatures, occur when a "dome" of high atmospheric pressure traps hazy, damp air near the ground. Extremely dry and hot conditions can provoke dust storms and low visibility. Droughts occur when a long period passes without substantial rainfall. A heat wave combined with a drought is a very dangerous situation.

During Hot Weather



To protect your health when temperatures are extremely high, remember to keep cool and use common sense. The following tips are important:

Drink Plenty of Fluids

During hot weather you will need to increase your fluid intake, regardless of your activity level. Don't wait until you're thirsty to drink. During heavy exercise in a hot environment, drink two to four glasses (16-32 ounces) of cool fluids each hour.

Warning: If your doctor generally limits the amount of fluid you drink or has you on water pills, ask how much you should drink while the weather is hot.

Don't drink liquids that contain alcohol, or large amounts of sugar—these actually cause you to lose more body fluid. Also avoid very cold drinks, because they can cause stomach cramps.

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Replace Salt and Minerals

Heavy sweating removes salt and minerals from the body. These are necessary for your body and must be replaced. If you must exercise, drink two to four glasses of cool, non-alcoholic fluids each hour. A sports beverage can replace the salt and minerals you lose in sweat. However, if you are on a low-salt diet, talk with your doctor before drinking a sports beverage or taking salt tablets.

Wear Appropriate Clothing and Sunscreen

Wear as little clothing as possible when you are at home. Choose lightweight, light-colored, loose-fitting clothing. Sunburn affects your body's ability to cool itself and causes a loss of body fluids. It also causes pain and damages the skin. If you must go outdoors, protect yourself from the sun by wearing a wide-brimmed hat (also keeps you cooler) along with sunglasses, and by putting on sunscreen of SPF 15 or higher (the most effective products say "broad spectrum" or "UVA/UVB protection" on their labels) 30 minutes prior to going out. Continue to reapply it according to the package directions.

Schedule Outdoor Activities Carefully



If you must be outdoors, try to limit your outdoor activity to morning and evening hours. Try to rest often in shady areas so that your body's thermostat will have a chance to recover.

Pace Yourself

If you are not accustomed to working or exercising in a hot environment, start slowly and pick up the pace gradually. If exertion in the heat makes your heart pound and leaves you gasping for breath, STOP all activity. Get into a cool area or at least into the shade, and rest, especially if you become lightheaded, confused, weak, or faint.

Stay Cool Indoors

Stay indoors and, if at all possible, stay in an air-conditioned place. If your home does not have air conditioning, go to the shopping mall or public library—even a few hours spent in air conditioning can help your body stay cooler when you go back into the heat. Call your local health department to see if there are any heat-relief shelters in your area. Electric fans may provide comfort, but when the temperature is in the high 90s, fans will not prevent heat-related illness. Taking a cool shower or bath or moving to an air-conditioned place is a much better way to cool off. Use your stove and oven less to maintain a cooler temperature in your home.

Use a Buddy System

When working in the heat, monitor the condition of your co-workers and have someone do the same for you. Heat-induced illness can cause a person to become confused or lose consciousness. If you are 65 years of age or older, have a friend or relative call to check on you twice a day during a heat wave. If you know someone in this age group, check on them at least twice a day.

Monitor Those at High Risk

Although anyone at any time can suffer from heat-related illness, some people are at greater risk than others.



- Infants and young children are sensitive to the effects of high temperatures and rely on others to regulate their environments and provide adequate liquids.
- People 65 years of age or older may not compensate for heat stress efficiently and are less likely to sense and respond to change in temperature.
- People who are overweight may be prone to heat sickness because of their tendency to retain more body heat.
- People who overexert during work or exercise may become dehydrated and susceptible to heat sickness.
- People who are physically ill, especially with heart disease or high blood pressure, or who take certain medications, such as for depression, insomnia, or poor circulation, may be affected by extreme heat.

Visit adults at risk at least twice a day and closely watch them for signs of heat exhaustion or heat stroke. Infants and young children, of course, need much more frequent watching.

Adjust to the Environment

Be aware that any sudden change in temperature, such as an early summer heat wave, will be stressful to your body. You will have a greater tolerance for heat if you limit your physical activity until you become accustomed to the heat. If you travel to a hotter climate, allow several days to become acclimated before attempting any vigorous exercise, and work up to it gradually.

Do Not Leave Children in Cars

Even in cool temperatures, cars can heat up to dangerous temperatures very quickly. Even with the windows cracked open, interior temperatures can rise almost 20 degrees Fahrenheit within the first 10 minutes. Anyone left inside is at risk for serious heat-related illnesses or even death. Children who are left unattended in parked cars are at greatest risk for heat stroke, and possibly death. When traveling with children, remember to do the following:

- Never leave infants, children or pets in a parked car, even if the windows are cracked open.

- To remind yourself that a child is in the car, keep a stuffed animal in the car seat. When the child is buckled in, place the stuffed animal in the front with the driver.
- When leaving your car, check to be sure everyone is out of the car. Do not overlook any children who have fallen asleep in the car.

Use Common Sense

Remember to keep cool and use common sense:

- Avoid hot foods and heavy meals—they add heat to your body.
- Drink plenty of fluids and replace salts and minerals in your body. Do not take salt tablets unless under medical supervision.
- Dress infants and children in cool, loose clothing and shade their heads and faces with hats or an umbrella.
- Limit sun exposure during mid-day hours and in places of potential severe exposure such as beaches.
- Do not leave infants, children, or pets in a parked car.
- Provide plenty of fresh water for your pets, and leave the water in a shady area.

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Hot Weather Health Emergencies



Even short periods of high temperatures can cause serious health problems. During hot weather health emergencies, keep informed by listening to local

weather and news channels or contact local health departments for health and safety updates. Doing too much on a hot day, spending too much time in the sun or staying too long in an overheated place can cause heat-related illnesses. Know the symptoms of heat disorders and overexposure to the sun, and be ready to give first aid treatment.

Heat Stroke

Heat stroke occurs when the body is unable to regulate its temperature. The body's temperature rises rapidly, the sweating mechanism fails, and the body is unable to cool down. Body temperature may rise to 106°F or higher within 10 to 15 minutes. Heat stroke can cause death or permanent disability if emergency treatment is not provided.

Recognizing Heat Stroke

Warning signs of heat stroke vary but may include the following:

- An extremely high body temperature (above 103°F, orally)
- Red, hot, and dry skin (no sweating)
- Rapid, strong pulse
- Throbbing headache
- Dizziness
- Nausea
- Confusion
- Unconsciousness

What to Do

If you see any of these signs, you may be dealing with a life-threatening emergency. Have someone call for immediate medical assistance while you begin cooling the victim. Do the following:

- Get the victim to a shady area.
- Cool the victim rapidly using whatever methods you can. For example, immerse the victim in a tub of cool water; place the person in a cool shower; spray the victim with cool water from a garden hose; sponge the person with cool water; or if the humidity is low, wrap the victim in a cool, wet sheet and fan him or her vigorously.
- Monitor body temperature, and continue cooling efforts until the body temperature drops to 101-102°F.
- If emergency medical personnel are delayed, call the hospital emergency room for further instructions.
- Do not give the victim fluids to drink.
- Get medical assistance as soon as possible.

Sometimes a victim's muscles will begin to twitch uncontrollably as a result of heat stroke. If this happens, keep the victim from injuring himself, but do not place any object in the mouth and do

not give fluids. If there is vomiting, make sure the airway remains open by turning the victim on his or her side.

Heat Exhaustion



Heat exhaustion is a milder form of heat-related illness that can develop after several days of exposure to high temperatures and inadequate or unbalanced replacement of fluids. It is the body's response to an excessive loss of the water and salt contained in sweat. Those most prone to heat exhaustion are elderly people, people with high blood pressure, and people working or exercising in a hot environment.

Recognizing Heat Exhaustion

Warning signs of heat exhaustion include the following:

- Heavy sweating
- Paleness
- Muscle cramps
- Tiredness
- Weakness
- Dizziness
- Headache
- Nausea or vomiting
- Fainting

The skin may be cool and moist. The victim's pulse rate will be fast and weak, and breathing will be fast and shallow. If heat exhaustion is untreated, it may progress to heat stroke. Seek medical attention immediately if any of the following occurs:

- Symptoms are severe
- The victim has heart problems or high blood pressure

Otherwise, help the victim to cool off, and seek medical attention if symptoms worsen or last longer than 1 hour.

What to Do

Cooling measures that may be effective include the following:

- Cool, nonalcoholic beverages
- Rest
- Cool shower, bath, or sponge bath
- An air-conditioned environment
- Lightweight clothing

Heat Cramps

Heat cramps usually affect people who sweat a lot during strenuous activity. This sweating depletes the body's salt and moisture. The low salt level in the muscles may be the cause of heat cramps. Heat cramps may also be a symptom of heat exhaustion.

Recognizing Heat Cramps

Heat cramps are muscle pains or spasms—usually in the abdomen, arms, or legs—that may occur in association with strenuous activity. If you have heart problems or are on a low-sodium diet, get medical attention for heat cramps.

What to Do

If medical attention is not necessary, take these steps:

- Stop all activity, and sit quietly in a cool place.
- Drink clear juice or a sports beverage.
- Do not return to strenuous activity for a few hours after the cramps subside, because further exertion may lead to heat exhaustion or heat stroke.
- Seek medical attention for heat cramps if they do not subside in 1 hour.

Sunburn



Sunburn should be avoided because it damages the skin. Although the discomfort is usually minor and healing often occurs in about a week, a more severe sunburn may require medical attention.

Recognizing Sunburn

Symptoms of sunburn are well known: the skin becomes red, painful, and abnormally warm after sun exposure.

What to Do

Consult a doctor if the sunburn affects an infant younger than 1 year of age or if these symptoms are present:

- Fever
- Fluid-filled blisters
- Severe pain

Also, remember these tips when treating sunburn:

- Avoid repeated sun exposure.
- Apply cold compresses or immerse the sunburned area in cool water.
- Apply moisturizing lotion to affected areas. Do not use salve, butter, or ointment.
- Do not break blisters.

Heat Rash



Heat rash is a skin irritation caused by excessive sweating during hot, humid weather. It can occur at any age but is most common in young children.

Recognizing Heat Rash

Heat rash looks like a red cluster of pimples or small blisters. It is more likely to occur on the neck and upper chest, in the groin, under the breasts, and in elbow creases.

What to Do

The best treatment for heat rash is to provide a cooler, less humid environment. Keep the affected area dry. Dusting powder may be used to increase comfort.

Treating heat rash is simple and usually does not require medical assistance. Other heat-related problems can be much more severe.

Evaluation and Treatment of Heat-Related Illnesses

RANDELL K. WEXLER, M.D.

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The body's ability to regulate core temperature depends on both host (internal) and environmental (external) factors. Although athletes are commonly thought to be most at risk for heat illnesses, children and the elderly are particularly vulnerable. Heat cramps, which are caused by fluid and electrolyte imbalances, are treated with massage, and fluid and electrolyte replacement. Heat exhaustion occurs both as water- and sodium-depleted types, with associated symptoms such as malaise, vomiting, and confusion. Treatment involves taking the affected person to a cool environment and replacing fluids and electrolytes if needed. In more serious cases, intravenous hydration may be necessary, although monitoring of serum sodium levels is important to prevent cerebral edema. If not treated promptly, heat exhaustion may evolve into heatstroke, a deadly form of heat illness. Heatstroke occurs in classic and exertional forms and is present when the core body temperature exceeds 40°C (104°F). The patient may experience cardiac arrhythmias, rhabdomyolysis, serum chemistry abnormalities, disseminated intravascular coagulation, and death. Heatstroke is a medical emergency that should be treated immediately with temperature-lowering techniques such as immersion in an ice bath or evaporative cooling. Fluid resuscitation is important but should be closely monitored, and renal function may need to be protected with mannitol and diuretics. It is important to be vigilant for heat illnesses because they occur insidiously but progress rapidly. (Am Fam Physician 2002;2307-14,2319-20. Copyright© 2002 American Academy of Family Physicians.)

A patient information handout on heat-related illnesses, written by the author of this article, is provided on page 2319.

Members of various medical faculties develop articles for "Practical Therapeutics." This article is one in a series coordinated by the Department of Family Medicine at Ohio State University College of Medicine and Public Health, Columbus. Guest editor of the series is Doug Knutson, M.D.

The ability of the body to regulate core temperature depends on a host of factors, including ambient temperature, acclimatization, humidity, wind, clothing, pre-existing medical conditions, and medication use. An estimated 6 million workers in the United States are exposed to occupational heat stress,¹ with fatalities most commonly reported in the fields of construction, agriculture/forestry/fishing, and manufacturing.¹ Children and the elderly are particularly vulnerable,² while athletes and recreational sports enthusiasts are also at risk.

Older persons, children, and patients with chronic disease or poor physical conditioning are particularly susceptible to heat-related illness.

Physiology

The normal core body temperature for humans, measured rectally, depends on the environmental climate and internal metabolic function. When the core temperature rises, the basal metabolic rate can increase significantly. For every 0.6°C increase in core temperature, there is a 10 percent elevation in the basal metabolic rate.³ Core temperature can increase as a result of elevated ambient temperature or through work-related activities and athletic performance that increase metabolic rate. For example, marathon runners have developed temperature elevations up to 41°C (105.8°F) while running in 25°C (77°F) weather.⁴

Thermoregulation is controlled by the hypothalamus. The parasympathetic system controls sweating, with the sympathetic nervous system regulating increases in skin blood flow and vasodilatation for heat dissipation. Normally, thermoregulation is highly effi-

Persons in poor physical condition have an increased risk of electrolyte imbalances because they lose more sodium during exercise than persons who are well conditioned.

cient, with a mere 1°C change in core temperature for every 25°C to 30°C change in ambient temperature.⁵ Chronic disease, some medications, and poor physical conditioning can impair the body's normal mechanisms of dissipating heat, which may result in a dangerously high core temperature.

The basic mechanism behind heat-related illness is the body's inability to dissipate heat produced by metabolic activity, often as a result of increased ambient temperature. Environmental influences, clothing, pre-

TABLE 1
Pre-Existing Conditions That May Contribute to Heat-Related Illnesses

Alcoholism
Anorexia
Cardiac disease
Cystic fibrosis
Dehydration
Diabetes insipidus
Eating disorders
Extremes of age
Febrile illness
Gastroenteritis
History of heatstroke
Hypokalemia
Obesity
Poor acclimatization
Sleep deprivation
Sunburn
Sweat gland dysfunction
Uncontrolled diabetes
Uncontrolled hypertension/thyroid disorder
Upper respiratory tract infection

Information from references 1, and 6 through 8.

existing illness (Table 1),^{1,6-8} and certain medications (Table 2)^{1,7,8} can contribute to this problem.

There are four processes by which the body rids itself of excess heat: conduction, convection, radiation, and evaporation. Conduction occurs when the body comes in contact with something cold, allowing heat to be transferred to the cooler object, such as when one applies cold packs to the body. Convection takes place when air passes over the body, lifting heat away, as occurs on a windy day or through the use of fans. Infrared dissipation, heat released by the body into the environment, is radiation. Finally, the evaporation of sweat from the skin plays a major role in heat dissipation during exercise and is the primary thermoregulatory mechanism when the ambient temperature is above 20°C (68°F).⁶

Children deserve special mention in the consideration of heat-related illness. Compared with adults, children produce proportionately more metabolic heat, have a core temperature that rises faster during dehydration, and have smaller organ systems, allowing for less efficient heat dissipation.⁶ Thus, caution should be exercised with children when conditions are right for heat illness. Close observation of an active child is important, because a fatal event can occur within 20 minutes if normal heat loss mechanisms are overwhelmed.⁶ This fact emphasizes the danger of leaving children unattended in a car during hot weather.

HEAT CRAMPS

Muscle cramps, which commonly occur in athletes and other physically fit persons, are caused by excessive heat exposure. Any activity that results in profuse sweating followed by too little or too much fluid intake can result in these painful muscle spasms, usually affecting the calf or abdominal wall muscles. Cramping is probably secondary to sodium depletion.³

During exercise, a poorly conditioned athlete may lose 1 to 2 L of fluid and 65 mEq per L of sodium per hour, whereas a highly condi-

TABLE 2
Medications That May Contribute to Heat-Related Illnesses

Alcohol
Alpha adrenergics
Anticholinergics
Antihistamines
Benzodiazepines
Beta blockers
Calcium channel blockers
Neuroleptics
Phenothiazine diuretics
Tricyclic antidepressants

Information from references 1, 7, and 8.

tioned, well-acclimatized athlete loses 3 to 4 L of fluid per hour with a sodium loss of only 5 mEq per L.⁹ Although more conditioned athletes lose less salt, they may take in excessive amounts of water, thus diluting their electrolyte concentrations and precipitating cramps.⁷ In addition, during more intense

activity, a “slow” loss of sodium may occur over several hours to days, leading to cramps and progressing to other heat illnesses.¹⁰

Stretching the affected muscles and maintaining good hydration are important. Liberal intake of water is recommended, but this may induce hyponatremia if lost salt is not replaced. Commercial electrolyte solutions may help to prevent excessive salt loss, and a homemade formula of 1 tsp salt in 500 mL of water may also be used.¹¹ Increased intake of dietary salt may be preventive. The signs and symptoms of heat cramps are listed in Table 3.^{7,8,12,13}

HEAT EXHAUSTION

Heat exhaustion occurs as two types, water depleted and sodium depleted, although in reality they often overlap. Signs and symptoms of heat exhaustion (Table 3)^{7,8,12,13} include fatigue and malaise, anorexia, nausea, vomiting, anxiety, and confusion. Potentially dangerous clinical manifestations include circulatory collapse and excessive temperature.¹⁴ Core body temperature is usually higher than 38°C (100.4°F) but below the cutoff for heatstroke, which is 40°C (104°F).¹²

TABLE 3
Signs and Symptoms of Potentially Life-Threatening Heat-Related Illnesses

Heat cramps	Heat exhaustion	Heatstroke
Elevated body temperature	Same as heat cramps, plus:	Same as heat exhaustion, plus:
Thirst	Nausea/vomiting	Anhydrosis
Muscle cramps	Headache	Delirium/seizure/coma
Sweating	Malaise/myalgias	Renal failure
Tachycardia	Hypotension	Hepatocellular necrosis
	Lightheadedness/syncope	Hyperventilation
	Oliguria	Pulmonary edema
	Uncoordination	Arrhythmia
	Confusion	Rhabdomyolysis
	Irritability	Shock
		DIC

DIC = disseminated intravascular coagulation.

Information from references 7, 8, 12, and 13.

Patients with water-depleted heat exhaustion are hypernatremic. Slow hydration prevents cerebral edema.

Heat exhaustion from water depletion tends to occur in the elderly, who are more likely to have pre-existing conditions or take medications that predispose them to dehydration, especially during the summer months, and in active persons who do not drink enough fluids. Signs of dehydration include increased thirst, fatigue, dry oral mucosa, and decreased urinary output.

Heat exhaustion from sodium depletion occurs most often in unacclimated persons who maintain volume status with water, but fail to replace sodium lost in sweat. These persons may actually be “hyperhydrated,” and most will have a history of high fluid intake.¹⁵ Symptoms such as weakness, fatigue, and headache appear acutely, but the onset tends to occur over a period of several days.⁷

For “mild” cases of heat exhaustion, in which the person is fluid depleted but not dehydrated, has normal vital signs, and is not vomiting, the treatment is rest in a cool environment along with oral fluid replacement and salt replacement, if needed. In more seriously impaired persons—those with mental status changes or cardiac arrhythmia (especially ventricular tachycardia), or those who fail to improve with conservative measures—treatment in the emergency department with intravenous (IV) fluids and careful monitoring

of blood chemistries is appropriate. IV administration of 1 L of 5.5 percent dextrose in normal saline over 30 to 60 minutes while monitoring serum sodium and potassium levels is recommended.⁷ Metabolic abnormalities such as phosphate, calcium, and magnesium imbalances should also be monitored and corrected.

When a person with water-depleted heat exhaustion is hypernatremic, it is necessary to hydrate slowly at a rate sufficient to reduce serum sodium by about 2 mEq per L per hour to prevent iatrogenic cerebral edema.^{3,10} In the hypernatremic state, a condition of hyperosmolality exists. To maintain osmotic equilibrium, there is intracellular volume contraction. In hypertonic syndromes the brain compensates by increasing osmoles in the brain cells. A sudden decrease in serum osmolality may be hypotonic relative to the brain cells, causing an increase of intracellular fluid into the brain cells and, thus, resulting in brain edema.³

Treatment for heat exhaustion should begin as soon as symptoms occur. If there is any question about outpatient or inpatient treatment, the patient should be transported to the emergency department. Failure to arrest the process during heat exhaustion could lead to the more deadly condition of heatstroke.

HEATSTROKE

Heatstroke, the deadliest of heat illnesses, occurs in two forms—classic and exertional—and is defined by a core body temperature above 40°C (104°F).¹² Treatment must begin immediately to ensure survival. With prompt recognition and appropriate treatment, the survival rate is 90 to 100 percent¹⁶; however, in specific occupations the mortality rate is high. In firefighters, for example, mortality from heatstroke may approach 80 percent, heightening clinical concern in these persons.¹³

Classic heatstroke occurs during summer months and predominantly affects those with advanced age or chronic medical conditions. The triad of classic heatstroke is hyperpyrexia, anhidrosis, and mental status changes.^{8,17} One half of all heat-related deaths occur in persons

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older than 65 years.¹⁸ In addition to the elderly, persons with cardiovascular and cerebrovascular disease, diabetes, and nervous system disorders are at increased risk for hospitalization from heatstroke.² Complications from heatstroke, such as acute renal failure, are common.¹⁹

Exertional heatstroke most often occurs in the summer, and primarily affects laborers or athletes. Symptoms are similar to those of classic heatstroke but with one major difference: many persons with exertional heatstroke continue to sweat.^{3,12,20} This difference is important because in someone who continues to perspire, heatstroke may be overlooked, thus delaying treatment. In addition, rhabdomyolysis and its complications (hyperkalemia, hyperphosphatemia, hypocalcemia, and myoglobinuria) often occur in persons with exertional heatstroke.³

Heatstroke is a medical emergency. Multiple organ systems can be affected. Prompt recognition and treatment are necessary to increase survival and decrease sequelae. It is important to remember that heat exhaustion, if not promptly treated, can lead to heatstroke, and that the two conditions may overlap, making vigilance of the utmost importance. Signs and symptoms of heatstroke are listed in *Table 3*.^{7,8,12,13}

“The penguin effect” is an interesting concept.⁵ The name is derived from the “huddling,” heat-conserving method used by Antarctic penguins. This concept applies to the physiologic changes that occur in humans in overcrowded environments. In a crowd situation, the persons in the middle are surrounded by heat-producing bodies. They tend to absorb the heat given off by the latter and are unable to dissipate heat effectively, leading to overheating and the possibility of heatstroke. This effect may occur even if the ambient temperature does not seem hot enough.

Treatment of Heatstroke

Treatment of heatstroke begins with monitoring airway, breathing, and circulation

Initial treatment for heatstroke includes calling for help; assessing the patient’s airway, breathing, and circulation; moving the patient to a cool area; applying ice packs to the neck, axillae, and groin; and dousing the patient with water.

(*Table 4*).^{1,6,8,12,13,21} Affected persons may seize, aspirate, or become hypotensive, and maintenance of the airway and circulatory function is critical. Patients initially seen in the community setting should be moved to a shady, cooler environment and have clothing removed, while an ambulance is called. Ice packs should be applied to the neck, axillae, and groin.^{6,8} The patient should be doused with water and fanned, if possible, to promote evaporative heat loss. Monitoring of the patient’s airway, breathing, and circulation should continue until the ambulance arrives.

In the emergency department, medical staff

TABLE 4
Prevention and Treatment of Heat Stroke

Prevention	Treatment
Prehydrate liberally with fluids	Check airway, breathing, and circulation
Drink fluids before becoming thirsty	External cooling techniques
Exercise in early morning/evening	Prehospital:
Treat pre-existing conditions	Transfer to a cool, shady area
Wear clothing appropriate for environment	Remove insulating clothing
Check Heat Index Chart	Apply ice packs to neck, axillae, and groin
Acclimate over a two-week period to get conditioned to exercising in the heat	Douse with water
	In emergency department:
	Ice bath immersion
	Evaporative cooling
	Neuroleptics for seizures
	Mannitol/diuretics if needed to maintain urine output at 50 to 100 mL per hour
	Stop cooling at a rectal temperature of 38°C (100.4°F)

Information from references 1, 6, 8, 12, 13, and 21.

Heat Index Chart													
Relative humidity (%)													
°F	40	45	50	55	60	65	70	75	80	85	90	95	100
Air temperature (°F)	110	136											
	108	130	137										
	106	124	130	137									
	104	119	124	131	137								
	102	114	119	124	130	137							
	100	109	114	118	124	129	136						
	98	105	109	113	117	123	126	131					
	96	101	104	108	112	116	121	126	132				
	94	97	100	102	106	108	114	119	124	129	136		
	92	94	96	99	101	105	108	112	116	121	126	131	
	90	91	93	95	97	100	103	105	109	113	117	122	127
	88	88	89	91	93	95	98	100	103	106	110	113	117
	86	85	87	88	89	91	93	95	97	100	102	105	108
	84	83	84	85	86	88	89	90	92	94	96	98	100
	82	81	82	83	84	84	85	86	88	89	90	91	93
	80	80	80	81	81	82	82	83	84	84	85	86	86

Heat Index/Heat Disorders

Heat index

Possible heat disorders for people in higher risk groups

Extreme danger

130°F or higher

Heatstroke/sunstroke highly likely with continued exposure.

Danger

105°F to 130°F

Sunstroke, heat cramps, or heat exhaustion likely, and heatstroke possible with prolonged exposure and/or physical activity.

Extreme caution

90°F to 105°F

Sunstroke, heat cramps, and heat exhaustion possible with prolonged exposure and/or physical activity.

Caution

80°F to 90°F

Fatigue possible with prolonged exposure and/or physical activity.

FIGURE 1. Heat Index Chart. The heat index combines the effects of heat and humidity to arrive at an apparent temperature. Direct sunshine increases the heat index by 15°F.

Reprinted from the U.S. National Weather Service. Retrieved March 2002 from: <http://weather.noaa.gov/weather/hwave.html#HeatIndexChart>.

Heat Illness

should obtain and monitor the patient's blood chemistries (electrolytes, phosphate, magnesium, calcium, creatine phosphokinase, and liver enzyme levels), initiate intravenous hydration if not completed en route, and begin rapid cooling as soon as possible.

The techniques most commonly used for rapid cooling are cold water immersion and evaporative cooling. In "traditional" cold water immersion, the patient is immersed in an ice bath and core body temperature and vital signs are monitored. Evaporative cooling combines spraying the patient with water at 15°C (59°F) while air warmed to 45°C (113°F) is passed over the body. This technique has been well outlined.²² Some studies report that the evaporative technique is superior to cold water immersion, with one study²¹ achieving a cooling rate of 0.31°C per minute.

A complete blood count may reveal leukocytosis or thrombocytopenia. A coagulation profile should be obtained to rule out disseminated intravascular coagulation. Urine should be evaluated for ketones, protein, and myoglobin.

Because renal compromise may occur in patients with hypotension, physicians should consider using mannitol and diuretics to maintain urine output at 50 to 100 mL per hour.¹² Resistant hyperkalemia may require the use of potassium-lowering resins.

Dantrolene (Dantrium) is a muscle relaxant that alters muscle contractility. It is the drug of choice for the treatment of malignant hyperthermia, and it has been studied for possible use in the treatment of heatstroke. Study results have been mixed. One study²³ reported that dantrolene use reduced cooling times, a pivotal step in the treatment of heatstroke. However, there was no statistically significant difference in recovery time between the group treated with dantrolene and the control group. Conversely, another study²⁴ found that dantrolene does not alter cooling time.

Once the patient is stable, and rectal temperature is 38.3°C (101°F) or less, cooling can be discontinued. This helps prevent the

inducement of hypothermia.⁸ If the patient starts to shiver because the temperature is decreased too rapidly or temperature reduction is overshoot, muscle relaxants or neuroleptics such as chlorpromazine (Thorazine) may be used to inhibit shivering and prevent a concomitant increase in temperature.¹² However, it is best to monitor the patient carefully to avoid shivering in the first place.

Preventing heatstroke is the first step in treating heatstroke (*Table 4*).^{1,6,8,12,13,21} Although it sounds deceptively simple, the best prevention is to avoid hot environments. To assess the environmental danger, a Heat Index Chart (*Figure 1*)²⁵ produced by the National Weather Service may help to determine when outside activity should be avoided.

The Heat Index combines humidity and temperature measurements to construct a scale that describes how warm the air feels when humidity is high. However, if activity is unavoidable in unfavorable conditions, precautions can help minimize health risks. For an athletic event, pre-training to provide acclimatization should occur for at least two weeks before the event.^{6,12} In addition, liberal intake of fluids before thirst begins and attire appropriate for the climate and the activity are recommended. If possible, shading from the sun by a hat or other clothing may be helpful.

The author indicates that he does not have any conflicts of interest. Sources of funding: none reported.

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Heat Illness

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PLAINTIFFS

V.

CIVIL ACTION NO.

4:14-cv-3253

JURY DEMAND

BRAD LIVINGSTON, JEFF PRINGLE, §
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UNIVERSITY OF TEXAS MEDICAL §
BRANCH and the TEXAS DEPARTMENT OF §
CRIMINAL JUSTICE. §

DEFENDANTS

Plaintiffs' Consolidated Summary Judgment Response Appendix

EXHIBIT 253

From: Jason Clark
To: Jeff Baldwin
CC: Jerry McGinty
Sent: 6/18/2012 3:51:42 PM
Subject: NY Times

Can I get the numbers of how many TDCJ prisons are fully air conditioned, how many are partially air-conditioned, how many have no air conditioning and how many have some other type of ventilation?

97 state operated facilities are ventilated

o 56 state operated facilities are air conditioned (19 facilities are fully air conditioned and 37 are partially air conditioned)

o 9 state operated facilities are ventilated with tempered air (blown over cooled coils)

Why do many TDCJ prisons have no air conditioning? Is it a financial question or does it relate to the age of the facilities or some other reason, or some combination of reasons?

Many of TDCJ's facilities were built before the time that air conditioning was commonly installed. Newer buildings were not constructed with air conditioning in mind. Retrofitting those units with air conditioning would be extremely expensive. It is presumed that taxpayers would not want to fund air conditioning of these units. Medical, psychiatric, and geriatric units are air conditioned.

What steps does TDCJ take in the summertime to reduce the heat in prisons that do not have air conditioning or have partial air conditioning?

Below are some system wide protocols that units utilize during extreme heat.

Provide additional water; ice should be provided if available in the work and housing areas

Restrict outside activity (work hours) in accordance with agency policy

Ensure all staff and offenders working in areas of extreme heat (e.g., field, maintenance, yard squad) are provided frequent water breaks

Transport offenders during the coolest hours of the day

Screen outgoing chain to ensure the selected mode of transportation is appropriate

Load and unload transfer vehicles as quickly as possible

Refill water coolers on buses at various times during the trip to maintain water at appropriate temperature

When utilizing fans, air should be drawn through the structure and exhausted outside, taking full advantage of the fresh air exchange system or prevailing winds to assist in the movement of air, as applicable

Increase airflow by utilizing blowers, when appropriate, normally used to move hot air in the winter; attach ribbons to vents to ensure blowers are being used appropriately

Allow additional showers for offenders when feasible

Allow offenders to wear shorts in dayrooms and recreational areas

Fans shall be allowed to all custody levels

Plaintiffs' MSJ Appx. 6195

TDCJ010694

Train employees and offenders so they are aware of the signs and treatment for heat-related illnesses

What air conditioning exists for administrators and corrections officers at TDCJ prisons that have no air conditioning?

There is typically air conditioning in the administrative and support offices of the unit. Also, medical, infirmaries, and geriatric areas on the unit are air conditioned. Correctional officers and unit staff otherwise work in the same conditions as the offenders.

Are you guys commenting about the Eugene Blackmon case and its allegations, or should I go through the Attorney General's office for a response?

The agency does not comment on pending litigation.

Can you tell me what methods are currently in place to assist inmates housed at Garza East, and in particular in the C-8 dorm, when it gets hot in the summertime? Is Garza East partially air conditioned or does it have no air conditioning?

Garza East is partially air conditioned. Administration, support offices, medical, and administrative segregation is air conditioned. The rest of the unit is not. The unit follows the same guidelines as other facilities during extreme temperatures. See above.

How many TDCJ inmates have died of heat-related causes while at TDCJ prisons or at hospitals after being transferred there from TDCJ prisons since 2005? Can I have the inmates' names, ages, causes of death and unit location?

You would need to file an open records request for this information. TDCJ is not the office of record for death certificates and would need to coordinate with UTMB get the responsive information.

I'm going to be writing about the death of Michael David Martone (DOB: 7/7/1954), an inmate at Huntsville who was transferred to Memorial Hermann Hospital in Harris County and died there on 8/8/2011. The Harris County medical examiner's office says the cause of death was hyperthermia. Can I get any details about the circumstances that led to him being transferred to the hospital? Where was the inmate located at Huntsville and what were the indoor temperatures in that area before he was transferred to the hospital?

The offender died on 8-8-11. He was assigned to the Huntsville Unit. The cause of death was ruled hyperthermia - accident due to hypertensive/atherosclerptic cardiovascular disease. The 57 year male complained of shortness of breath and subsequently lost consciousness on the way to medical. He was transported to a hospital where he was pronounced deceased by a physician. The unit temperature was 102 degrees.

I'm also writing about the death of Larry Gene McCollum (DOB: 4/4/1953), an inmate at Hutchins who died of hyperthermia, with a second contributing factor of morbid obesity, on 7/28/2011, according to the Dallas County medical examiner. Can I get any details about the circumstances leading up to his death? Where was the inmate located at Hutchins and what were the indoor temperatures in that area before he died?

The offender died 7-28-11. He was assigned to the Hutchins State Jail. An autopsy ruled that the cause of death was an accident - hyperthermia due to morbid obesity and treatment of diuretic. I do not have any further information on the death or the temperature on the day of his death.

Does TDCJ believe that a lack of air conditioning contributed to the deaths of inmate Martone and inmate McCollum last summer?

The agency is not going to speculate on whether the lack of air conditioning was a factor in the offender's deaths.

Current and former inmates, their relatives and their lawyers believe it is inhumane for TDCJ to house inmates in facilities that do not have air conditioning during hot Texas summers. Beyond questions of comfort, they said that the 100-degree-plus conditions amount to cruel and unusual punishment. They said that a number of inmates pass out from the heat each summer, that there have been numerous inmate deaths in which the heat played a primary or secondary role and that TDCJ officials are aware of the situation but have done nothing to correct it. Can I get a response to that?

The agency ensures that every reasonable effort is made to prevent extreme temperature injuries. As noted above, TDCJ takes precautions to help reduce heat - related illnesses such as providing offenders access to fans, restricting activity during the hottest parts of the day, providing water and ice in work and housing areas, and

training staff to identify and treat those with heat related illnesses. The agency is committed to making sure that all are safe during the extreme heat.

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UNITED STATES DISTRICT COURT
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UNIVERSITY OF TEXAS MEDICAL §
BRANCH and the TEXAS DEPARTMENT OF §
CRIMINAL JUSTICE. §

DEFENDANTS

Plaintiffs' Consolidated Summary Judgment Response Appendix

EXHIBIT 254

From: Morris, Susan M.
To: Adams, Charles D.
CC: Lannette Linthicum; Jarrett, W. E.; Saenz, Hilario; Smock, Stephen R.; Stalinsky, Drew E.
Sent: 7/24/2013 3:09:03 PM
Subject: Re: Air Conditioner at McConnell

I spoke with Mr Stalinsky.

The problem with the ac is the compressor and the warden is aware of the need. Apparently one has been ordered from Huntsville.

Security will escort the patients from 8 bldg to the main medical department to be seen until the ac can be fixed.

We do not have any portable ac units but it certainly would make sense to invest in a small portable floor unit. I suppose the question is who would authorize the expenditure? Meanwhile, the meds will just have to be moved to an appropriate cooled room and transported to the pill window to be issued. Mr Stalinsky will be visiting shortly with someone in supply about some type of cooling unit for temporary use.

We will keep you posted of developments.

Susan

On Jul 24, 2013, at 2:45 PM, "Adams, Charles D." <cdadams@utmb.edu> wrote:

>
> I don't know, but I have copied that regional team for a response.
>
>
>
> Charles D. (Danny) Adams, MD, MPH
> Senior Medical Director- Outpatient Division
> UTMB-CMC
>
>
>
> From: lannette.linthicum@tdcj.state.tx.us [lannette.linthicum@tdcj.state.tx.us]
> Sent: Wednesday, July 24, 2013 1:13 PM
> To: George Crippen RN, MSN; Eubank, Gary J.; Smock, Stephen R.; Adams, Charles D.
> Cc: Owen Murray
> Subject: Fw: Air Conditioner at McConnell
>
> Please explain the statement concerning medical staff refusing to see
> patients in building 8. Where are the patients being seen?
>
>
> ----- Original Message -----
> From: George Crippen
> Sent: 07/24/2013 01:03 PM CDT
> To: Clyde Armstrong; Tommy Vian
> Cc: Gary Currie; Frank Inmon; Cody Ginsel; sdzepeda@utmb.edu; Lannette
> Linthicum; srsmock@utmb.edu; cdadams@utmb.edu
> Subject: Air Conditioner at McConnell
> Mr. Armstrong and Mr. Vian:
>
> At the McConnell Unit, during a Quality Improvement/Quality Management
> audit performed by TDCJ Office of Health Services Monitoring, that
> occurred yesterday July 23, 2013, the air conditioner in the Pill Window
> was not working and the temperature was over 90 degrees, according to the
> thermometer in the pill room and this was addressed last month in the
> Pharmacy report. This is a serious issue because the integrity of the
> medications can be affected when they are stored in such high temperatures
> and the staff members cannot function properly in heat such as this. The
> medical staff members were seeing offenders in the medical department in
> Building 8, the air conditioner was not working and it appeared to be
> hotter than the pill window. In addition, it was reported to me that the
> medical providers are refusing as of yesterday to go to Building 8 to see
> offender patients.
>

> Please determine what is being done to alleviate these conditions currently
> and when the air conditioners will be repaired. Also, can portable air
> conditioners be utilized until the air conditioners can be repaired?
>
> Thank you
>
>
> George Crippen, RN, MSN, PhDc
> Chief Nursing Officer/Director, Clinical Administration
> Texas Department of Criminal Justice
> email: george.crippen@tdcj.state.tx.us
> 936-437-3595 (Office)
> 936-437-3591 (Fax)
>
> The information contained in this electronic mail and any attachments is
> intended for the exclusive use of the addressee(s) and may contain
> confidential, privileged, or proprietary information. Any other
> interception or use of these materials is strictly prohibited. If you have
> received these materials in error, please notify me immediately by
> telephone and destroy all electronic information received. Thank you.
>
>

UNITED STATES DISTRICT COURT
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UNIVERSITY OF TEXAS MEDICAL §
BRANCH and the TEXAS DEPARTMENT OF §
CRIMINAL JUSTICE. §

DEFENDANTS

Plaintiffs' Consolidated Summary Judgment Response Appendix

EXHIBIT 255

From: Karen Hall
To: Bryan Collier; Jeff Baldwin; Jerry McGinty; Ron Steffa; Paul Glass; William Stephens; Tommy Vian/Facilities/TDCJ@TDCJ; Frank Inmon; Robert Eason; Michael Upshaw
Sent: 8/21/2013 9:46:35 AM
Subject: Units with Air Conditioning - DRAFT Document
Attachments: AC Survey - June 14, 2013 - Fac Notes Added - DRAFT.xls

Attached is a copy of the survey results that were distributed yesterday that are now marked DRAFT. Please destroy the copy you received yesterday and replace it with this one. We are getting a lot of feedback and want to emphasize that these results are not final.

DOCUMENT PLACEHOLDER

File Name: AC Survey - June 14, 2013 - Fac Notes Added - DRAFT.xls

Texas Department of Criminal Justice
Survey of Which Units Have Air Conditioning in Housing Areas
June 2013

Code	Unit	Unit Notes	Facilities Notes	All	Part	None
BR	BRIDGEPORT	All		X		
T1	BRIDGEPORT	All		X		
CV	CLEVELAND	All		X		
N4	COTULLA	All offender housing A/C		X		
JD	DAWSON	All		X		
DO	DIBOLL	All		X		
N6	DUNCAN	All areas are air conditioned		X		
XQ	EAST TX TREATMENT	All		X		
VS	ESTES	All		X		
N5	FT. STOCKTON	All offender housing A/C		X		
SO	GLOSSBRENNER	All offender housing A/C	Same design as LeBlanc	X		
BB	HALBERT	All housing areas		X		
JH	HAMILTON	All housing areas with the exception of 7 cells in Solitary/PHD	Same design as LeBlanc	X		
TH	HAVINS	All housing areas		X		
LT	HENLEY	All offender housing areas are equipped with air conditioning.		X		
HG	HOSPITAL GALVESTON	Hospital Galveston is an air condition building and maintained by UTM/B		X		
J4	JESTER IV	The Jester IV unit has A/C in all housing areas on the unit.		X		
HM	KEGANS	All housing areas have A/C in living areas and dayrooms		X		
KY	KYLE	All		X		
BA	LEBLANC	Has air conditioning in all offender housing areas.	A/C in dorms	X		
LN	LINDESEY	All		X		
LC	LOCKHART	All		X		
T3	LOCKHART WORK	All		X		
N1	MARLIN	All housing areas		X		
T2	MINERAL WELLS	All		X		
BM	MOORE, B.	All		X		
HF	NEY	All offender housing A/C		X		
N2	SAN SABA	All housing areas		X		
SV	SKYVIEW	All housing areas have A/C.		X		
XM	SOUTH TEXAS	All		X		
TI	TRAVIS COUNTY	All housing areas		X		
N3	TULJA	air conditioning on the entire unit		X		
XN	WEST TEXAS	All		X		
WI	WILLACY COUNTY	All		X		
JA	ALLRED	Expansion Cellblock-A/C / 12 Building- A/C / 10 Building-A/C / all others outside air	Expansion cellblock has A/C		X	
BL	BARTLETT	Seg Only			X	
NL	BATEN	Air conditioning in Ad Seg only all others circulate outside air			X	
BY	BOYD	Segregation has A/C. No other housing areas have A/C.			X	
BH	BRADSHAW	Seg Only			X	
DB	BRISCOE	Line Building (Ad-Seg) A/C; no other housing.			X	
BC	CLEMENTS	Expansion Cellblock-Air Cond / 12 Building-Air Cond / 10 Building-Air Conditioning / all others outside air	Medical beds in the infirmary have A/C		X	
CL	COLE	X-Wing (seg) has A/C. No other housing areas have A/C.	Ad seg has A/C		X	
CY	CONNALLY	10 Building Medical cells and 12 Building (Ad-Seg) A/C; no other housing			X	
GV	CRAIN	Part of the housing areas	Valley, Terrace, Hackberry, and Sycamore dorms are A/C. Trusty camp and Terrace and Riverside cellblocks are not A/C		X	
DH	DALHART	A/C in Ad Seg only all others circulate outside air			X	
DL	DANIEL	A/C in Ad Seg only all others circulate outside air	Ad seg and medical cells have A/C		X	
BX	DOMINGUEZ	K Building 1 thru 5 A/C; no other housing	Line Bldg G and medical holding cells have A/C		X	
E2	ESTELLE	High Security has air conditioning, RMF has air conditioning, Geriatric Center has air conditioning	A/C in expansion cellblock		X	
FB	FORMBY	Does not have air conditioning in the dorms. K and X wing have forced air.			X	
NI	GARZA EAST	Ad seg has A/C			X	
NH	GARZA WEST	G Building (GTR) and Ad Seg have A/C; no other housing			X	
GG	GOODMAN	G Building (GTR) and Ad Seg have A/C; no other housing			X	
ND	GURNEY	3 segregated cells are air conditioned			X	
HB	HOBBY	Seg and K Building have A/C.			X	
		The 7 cells in Ad Seg have air conditioning			X	

Ad Seg has A/C
Plaintiffs' MSJ Appx. 0204

Texas Department of Criminal Justice
Survey of Which Units Have Air Conditioning in Housing Areas
June 2013

Code	Unit	Unit Notes	Facilities Notes	All	Part	None
NF	HOLLIDAY	Administrative Separation is air conditioned (G bldg) A/C in Ad Seg Building (504 Cells); 10 Building Medical (15 Medical cells, 2 mental health cells)			X	
AH	HUGHES	K building (seg) has A/C. No other housing areas have A/C.			X	
HJ	HUTCHINS	A/C in part of the housing units	Dorms 15 and 16 and medical cells have A/C		X	
J3	JESTER III	Seg has A/C. No other housing areas have A/C.			X	
JT	JOHNSTON	A/C in Ad Seg only all others circulate outside air.	Ad seg and medical cells have A/C		X	
JN	JORDAN	7 cells designated for PHD and Solitary in the back of the Line bldg have air conditioning. Expansion cell block has air conditioning	Expansion cellblock and medical cells have A/C. Ad Seg 4 cell does not.		X	
GL	LEWIS	General population has no A/C in living areas. K-Building - Houses ad-seg and J4 offenders have A/C in living areas	Line Bldg G and medical holding cells have A/C		X	
AJ	LYCHNER	Line Building (Ad Seg) A/C; no other housing			X	
LH	LYNAUGH	10 Building Medical cells and 12 Building (Ad-Seg) A/C; no other housing			X	
ML	MCCONNELL	Seg has A/C. No other housing areas have A/C.			X	
MI	MICHAEL	Administrative Separation			X	
NE	MIDDLETON	main unit is air conditioned for all housing. The trusty camp is not air conditioned.			X	
JM	MONTFORD	Seg has A/C. No other housing areas have A/C.			X	
CM	MOORE, C.	Dorms, MPF and Cellblock only. No A/C in Ad Seg.			X	
MV	MT. VIEW	No A/C in general population housing areas. Ad Seg has A/C			X	
LM	MURRAY	Air conditioning in Ad Seg only all others circulate outside air	Ad seg and medical cells have A/C		X	
KN	NEAL	Air conditioning in Ad Seg and Infirmary housing			X	
P1	PACK	10 building and 12 building have A/C			X	
TL	POLUNSKY	Air conditioning in Ad Seg only all others circulate outside air			X	
RH	ROACH	10 & 12 Buildings have air conditioning			X	
RB	ROBERTSON	Ad-Seg A/C; no other housing			X	
RZ	RUDD	All housing areas	No A/C in Ad Seg		X	
SY	SAYLE	B-2 Housing and Ad Seg with A/C; no other housing			X	
EN	SEGOVIA	Air conditioning in the Ad Seg (Line Bldg) and ECB (Expansion Cell Block) housing			X	
SM	SMITH	12-Building and 10-Building have A/C.			X	
SB	STEVENSON	10 Building, W Infirmary, and 12 Building have A/C.			X	
ST	STILES	Line Building (Ad-Seg) A/C; no other housing			X	
TO	TELFORD	Air conditioning in Ad Seg only all others circulate outside air			X	
TE	TORRES	Ad seg has A/C			X	
WL	WALLACE	No air conditioning in the dorms. K and X wing have forced air circulation.			X	
DW	WARE	Dorm - Ad Seg/Transit			X	
WR	WHEELER	Air conditioned except "C" Dormitory.	Outside dorm does not have A/C		X	
WM	WOODMAN	Medical beds in infirmary have A/C. No other housing areas have A/C			X	
GC	YOUNG	No A/C in housing areas			X	
B1	BETO	No offender housing areas have A/C.			X	
DU	BYRD	No A/C in any of the housing areas. Medical beds in infirmary have A/C			X	
CN	CLEMENS	No A/C in housing areas			X	
CO	COFFIELD	No A/C in any of the housing areas. Medical beds in infirmary have A/C			X	
DA	DARRINGTON	No A/C in housing areas			X	
EA	EASTHAM	No A/C in housing areas			X	
E1	ELIS	No A/C in housing areas			X	
FE	FERGUSON	No A/C in housing areas			X	
BJ	GIST	All dorm housing areas are equipped with Air Handler Systems. K-Building Segregation and Transient housing have an A/C System. The A/C system is currently inoperable and a MWR is in place. MWR09712002 - Initiated June 2012 - A/C K-Building - Currently at Facilities. Awaiting NTP.	Medical beds in the infirmary have A/C. A/C in K Building and transit housing remains inoperable. No A/C working in any housing areas at this time.		X	
GR	GOREE	Does not have A/C in any of the housing areas. Medical beds in infirmary have A/C.			X	
HI	HIGHTOWER	Plaintiffs' MSJ Appx. 6205			X	
HT	HILLTOP	No A/C in housing areas. Dayroom trusty camp has A/C.			X	

Texas Department of Criminal Justice
Survey of Which Units Have Air Conditioning in Housing Areas
June 2013

Code	Unit	Unit Notes	Facilities Notes	All	Part	None
HD	HODGE	No A/C in housing areas				X
HV	HUNTSVILLE	No A/C in housing areas				X
J1	JESTER I	No A/C in housing units				X
RL	LOPEZ	No A/C in offender housing areas. Medical beds in infirmary have A/C.				X
P2	LUTHER	No A/C in housing areas. Medical infirmary beds have A/C.				X
		K-Housing area is the only offender housing area that is supposed to be equipped with A/C on the Plane facility. However, the system is not functioning and there is an open Work Order. Unit Maintenance staff are not available at this time to obtain work order information but this information is available upon request.				
LJ	PLANE	Infirmary beds have A/C. No other housing areas have A/C.	Remains inoperable			X
B2	POWLEDGE	Infirmary beds have A/C. No other housing areas have A/C.				X
R1	RAMSEY	No A/C in any of our offender housing areas.				X
RV	SCOTT	No A/C in housing areas.				X
R2	STRINGFELLOW	Just air handlers in housing areas. Medical holding cells have A/C				X
R3	TERRELL	A/C in the unit infirmary which has the capacity to house 12 offenders.				X
J2	VANCE	No A/C in housing units.				X
WV	WYNNE	No A/C in housing areas				X

ISF

Privately Owned

Would be partial but is currently inoperable

UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF TEXAS
HOUSTON DIVISION

STEPHEN McCOLLUM, and SANDRA §
 McCOLLUM, individually, and STEPHANIE §
 KINGREY, individually and as independent §
 administrator of the Estate of LARRY GENE §
 McCOLLUM, §

PLAINTIFFS

V.

CIVIL ACTION NO.

4:14-cv-3253

JURY DEMAND

BRAD LIVINGSTON, JEFF PRINGLE, §
RICHARD CLARK, KAREN TATE, §
SANDREA SANDERS, ROBERT EASON, the §
UNIVERSITY OF TEXAS MEDICAL §
BRANCH and the TEXAS DEPARTMENT OF §
CRIMINAL JUSTICE. §

DEFENDANTS

Plaintiffs' Consolidated Summary Judgment Response Appendix

EXHIBIT 256

From: Cherie Miller on behalf of Oscar Mendoza
To: William Stephens
Sent: 9/4/2013 4:58:03 PM
Subject: Temperature Information
Attachments: ACA Temperature Standards.doc; Risk Management Heat Precautions.doc

Per your request, the attached information is being provided to you.

Oscar Mendoza
Director, Administrative Review &
Risk Management Division

From: William Stephens/Institutional/TDCJ
To: Oscar Mendoza/Admin_Review_&_Risk_Mgmt/TDCJ@TDCJ
Date: 09/04/2013 01:21 PM
Subject: Temperature standards
Sent by: Kristina Gilstrap

Per our conversation please provide any information regarding standards, ACA or otherwise that relate to temperature controls in offender housing , adult prisons ,or county jails. Also, any information that Risk Management can provide regarding the appropriate method for taking temperatures in housing areas will be appreciated.

William Stephens
Director
Correctional Institutions Division
(936) 437-2170 Office
(936) 437-6325 Fax

The information contained in this electronic mail and attachments is intended for the exclusive use of the addressee(s) and may contain confidential, privileged, or proprietary information. Any other use of these materials is strictly prohibited. This email may not be forwarded outside the Texas Department of Criminal Justice without the permission of the original sender. If you have received this material in error, please notify me immediately by telephone and destroy all electronic, paper, or other versions.

ACA Temperature Standards

ACI 4-4153

Temperatures in indoor living and work areas are appropriate to the summer and winter comfort zones.

Comment: Temperature should be capable of being mechanically raised or lowered to an acceptable comfort level.

Primary: AD-10.64

Secondary: Outside Temperature Log

Core Jail Standards

I-CORE-IA-IO (Ref.4-ALDF-IA-19, IA-20)

A ventilation system supplies at least 15 cubic feet per minute of circulated' air per occupant, with a minimum of five cubic feet per minute of outside air. Toilet rooms and cells with toilets have no less than four air changes per hour unless state or local codes require a different number of air changes. Air quantities are documented by a qualified independent source and are checked not less than once per accreditation cycle. Temperatures are mechanically raised or lowered to acceptable comfort levels.

Comment: Accreditation cycle is defined as within the past three years.

Protocols: Written policy and procedure. Facility plans/specifications.

Process Indicators: Measurement. Observation. Inmate and staff interviews. Facility logs and records. Maintenance and repair records. Report from independent source.

Standards Committee Meeting Minutes, August 9, 2013

Manual: Adult Correctional Institutions (ACI)

Edition: 4th Edition

Standard: 4-4153

Agency/Facility: ACA Physical Plant Standards Subcommittee

Facility Size: N/A

Accredited: N/A

Proposal Type: Revision

Existing Standard:

4-4153 (Revised August 2006): Temperatures in indoor living and work areas are appropriate to the summer and winter comfort zones.

Proposal:

4-4153 (New Construction Only- June 2014)

Indoor temperatures for living, programming, and medical areas (excluding Food Preparation areas) shall be maintained between 68 and 78 degrees Fahrenheit.

Comment: Air Conditioning and heating systems will be designed in accordance with standard practices and are calibrated for normal regional temperatures where the facility is located.

Action taken by the standards committee:

Approved **Denied** Tabled Referred to:
